January 1989

Part III: Clinical Departments and Divisions --- Chapter 18: Division of Cardiology (pages 380-385)

CHAPTER EIGHTEEN

Division of Cardiology

WARREN P. GOLDBURGH, M.D.

"Of all the ailments which may blow out life's little candle, heart disease is the chief."

—WILLIAM BOYD (1885–1979)

BEFORE THE establishment of a formal Division of Cardiology at Jefferson in 1964, a rich tradition of the diagnosis and treatment of heart disease existed. Dr. John Eberle, one of Jefferson's founders, while Professor of Theory and Practice of Medicine (1825–1831) wrote a *Treatise on the Practice of Medicine* (1830), which devoted 25 pages to diseases of the heart, including a section on sympathetic affections not attributable to organic lesions.[1] Robley Dunglison, Professor of the Institutes of Medicine from 1836 to 1868 and Dean during the last 14 of these years, wrote a text on *Practice of Medicine* (1842), in which he devoted 41 pages to diseases of the circulatory system. Roberts Bartholow, Professor of Materia Medica, encompassed diseases of the heart within 59 pages of his *Practice of Medicine* (1880). His successor, Dr. Hobart A. Hare, extended coverage on diseases of the heart to 70 pages in his *Practice of Medicine* (1905).

The Electrocardiographic Department

The most notable of Jefferson's Professors during the nineteenth century with respect to pioneering in heart disease was Dr. Jacob Mendes DaCosta (Jefferson, 1852) who was Chairman of Internal Medicine from 1872 to 1891. His preliminary report in 1862 and 1864 concerning "irritable heart" was the result of studies performed at the U.S. Army Hospital for Injuries and Diseases of the Nervous System at Turner's Lane Hospital in Philadelphia during the Civil War.[2] His textbook *Medical Diagnosis with Special Reference to Practical Medicine* (1864) devoted five pages to functional disorders of the heart. His classic work on "irritable heart," however, was published in 1871 and led to the naming of that condition "DaCosta's syndrome."[3] During World War I this was called "neurocirculatory asthenia" and in World War II

"anxiety neurosis." The syndrome was regarded as largely of functional cause, but in retrospect some cases were more involved and included the later-to-be-identified process of mitral valve prolapse.[4]

The invention of the electrocardiograph by Einthoven in 1902 ushered in the scientific era of cardiology. It took until the 1920s for it to come into widespread clinical use. Copies of old correspondence obtained by Dr. Robert I. Wise, Magee Professor of Medicine (1959–1975), provided information on the initiation of electrocardiography at Jefferson. In 1917, Dean Ross V. Patterson accepted a proposal from the Charles F. Hindle Company of New York City to install an electrocardiograph outfit for $1,675.25 with "extra instruction—additional charge per day of $16.00." Patterson raised funds for the equipment and used it successfully in a room of the 1907 Hospital provided by the Medical Director, Dr. Henry K. Mohler. In 1918 Dr. Thomas McCrae, Chairman of Medicine (1913–1935), proposed to the Hospital Committee "the question of establishing a separate department in the Hospital to be termed 'The Electrocardiographic Department'. . . The electrocardiograph represents a great advance in the study of cardiac disease and is a very important addition to our means of diagnosis . . . If you think favorably of this suggestion, the logical man to be put in charge is Dr. Ross V. Patterson [Figure 18-1] . . . It would, of course, be a department within the General Department of Medicine." With the support of Drs. Solomon Solis-Cohen and Hobart A. Hare, the Hospital Committee on May 21, 1918, acted upon Dr. McCrae's recommendation to create a Subdepartment of Electrocardiography, placing Dr. Ross V. Patterson, Assistant Physician to the Jefferson Hospital, in charge.

Dr. Patterson, who had graduated from Jefferson (1904), took further training at the Philadelphia General Hospital until 1906, and then became a member of the Jefferson faculty for the remainder of his life. He was President of the Alumni Association (1923–1925) and served as President of the Pennsylvania Medical Society (1930–1931) as well as President of the Association of American Medical Colleges (1933–1935). He was Sub-Dean at Jefferson (1906–1916) and Dean from 1916 until his death in 1938. Dr. Patterson, who never married, left almost his entire estate to Jefferson for Fellowships in Research. A curiosity among the personal effects in his bequest was the skull of the famous English Shakespearian actor, George Frederick Cooke (1756–1812), which he had received from the widow of Dr. George McClellan, the grandson of Jefferson's founder.

The Ross V. Patterson Heart Station

In 1939, a foundation in memory of Dr. Ross V. Patterson was established. Its purpose was "for the study and treatment of diseases of the heart and circulation; to study the history and treatment of diseases of circulation; to collect literature pertaining to these subjects; to undertake experimental work—animal, chemical, physical, etc., which may throw light upon the cause and cure of diseases of the heart and circulation; and to investigate such problems as may arise during

FIG. 18-1. Ross V. Patterson, M.D., First in Electrocardiography at Jefferson (1918).

the course of the aforementioned work." The Department of Electrocardiography was named the Ross V. Patterson Heart Station and headed by Dr. Henry K. Mohler (Jefferson, 1912), who, like his predecessor, was a cardiologist and the Dean. By this time, the volume of studies had increased to the point that Dr. Charles W. Semisch, III (Figure 18-2; Jefferson, 1933) was added to the staff as an Associate Cardiologist.

In 1942, the Cardiac Clinic was founded as an outpatient activity in the Curtis building. The Acting Chief Clinical Assistant was Dr. Louis B. Laplace, with Drs. Robert B. Nye (Jefferson, 1927), Hayward R. Hamrick (Jefferson, 1935), Charles W. Semisch, III, and James D. Nelson as Clinical Assistants. In the same year, following the death of Dr. Mohler, Dr. Nye became Physician-in-Charge of the Ross V. Patterson Heart Station, with Dr. Semisch continuing as Associate Cardiologist. In 1951, Dr. Louis Merves (Jefferson, 1937) joined as Assistant Cardiologist. Drs. Semisch and Merves were volunteer physicians with offices outside the hospital.

On May 6, 1953, the first open heart surgery in the world for closure of an interatrial septal defect was performed at Jefferson Hospital by Dr. John H. Gibbon, Jr., under total cardiopulmonary bypass with use of the heart-lung machine. This aspect of Jefferson history is covered in the chapter on cardiothoracic surgery, but deserves mention at this juncture as the beginning of a new era in the treatment of congenital and acquired cardiac disease. Cardiac catheterizations to study cases for cardiopulmonary bypass were at that time performed in the Department of Radiology by the Department of Surgery.

In 1956 the Heart Station was refurbished and expanded on the second floor of the Thompson Annex. Orthodiography and phonocardiography were being performed in addition to conventional electrocardiography. The administrative arrangement was loose in that it was under hospital control without the direct supervision of the Medical Department.

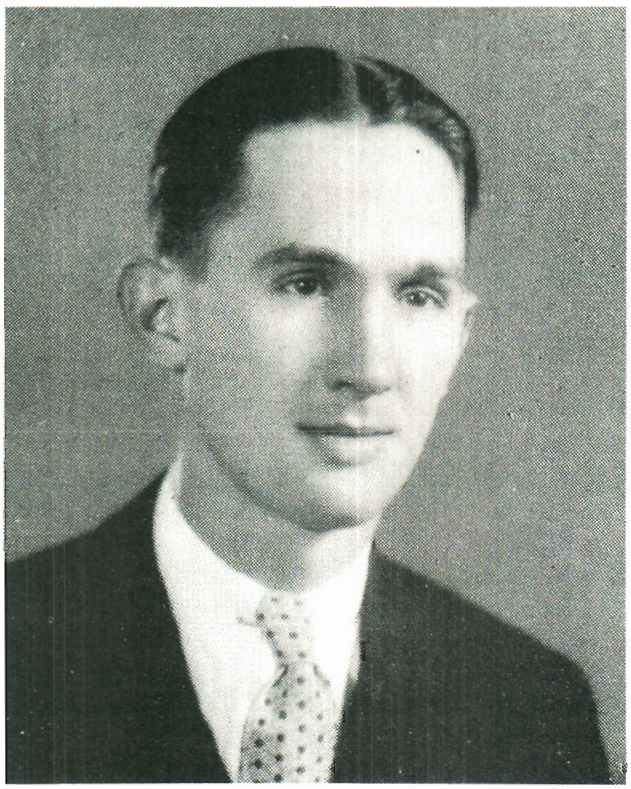

FIG. 18-2. Charles W. Semisch III, M.D.

The Division of Cardiology

Dr. Robert I. Wise, upon his appointment as Chairman of Medicine in 1959, desired clarification of the responsibilities of the Heart Station. By action of Dean William A. Sodeman and the newly appointed Hospital Director, Dr. Ellsworth R. Browneller, the appointments of professional personnel and the standards of quality for education, medical practice, and research in the Patterson Heart Station came under the aegis of the Medical Department. The administration of the physical plant, finance, and equipment remained with the Hospital Director. The Magee Professor was authorized to integrate the programs.

Cardiac catheterization, pulmonary function, and electrocardiography were unified into a single program in 1960, which allowed a single team to cooperate with the Departments of Radiology, Surgery, and Pediatrics. This enhanced the teaching of students, residents and fellows. Dr. John H. Killough (Figure 18-3), Associate Professor of Medicine, was appointed Director of Cardiopulmonary Diseases, with Dr. Richard

Cathcart of the Barton Division for Diseases of the Chest. Dr. Daniel W. Lewis (Figure 18-4) (Jefferson, J1944), Assistant Professor of Clinical Medicine, was assigned to the Heart Station and Pulmonary Function Laboratories.

In 1964 a formally recognized Division of Cardiology presented its first annual report. The cardiac clinics and conferences that had been held during the Chairmanship of Dr. John Deitrick (1952–1957) were extended by 1964 into a weekly graphic records conference, a clinical medical, pediatric, and surgical cardiology conference, daily instruction of students and residents in interpretation of electrocardiograms, and instruction in cardiac catheterization, vectorcardiography, phonocardiography, and apexcardiography. Introduction to electrocardiography for students was offered in an elective series of ten lectures. Over 1,000 electrocardiograms were being performed monthly. A cardiac catheterization laboratory had been established in the Hospital, and in 1961 Dr. Warren P. Goldburgh (Jefferson, 1952) was added to its staff. From 1967 to 1969, catheterizations were under the direction of Dr. William Eliades (Jefferson, 1958). Facilities for gas, dye, pressure, and radiologic studies were developed with a staff of three technicians and a nurse. An automatic cine-film developer was installed, and a laboratory for exercise functional studies. An animal laboratory was established with the Department of Anesthesiology. A graduate student in biomedical engineering joined the Division, and a candidate for a Master of Science was continuing his second year. In 1967, a journal club in cardiology was started. Insertion of electrical catheters for temporary cardiac pacing was initiated that same year.

In 1969, new leadership was provided to the Division with the appointment of Dr. Albert N. Brest (Figure 18-5) from Hahnemann Medical College as Director of the Division. Dr. Brest brought Drs. Hratch Kasparian and Leslie Wiener to aid as Directors of the Cardiac Catheterization Laboratory and Medical Cardiac Care Unit, respectively. They developed a modern cardiac care unit for medical and postoperative cardiac care supported by the most modern techniques for cardiac monitoring and laboratory studies. Electrocardiography with computerization and two new cardiac catheterization laboratories were constructed. Drs. Charles Semisch and William Eliades were Co-Directors of the Division for 1968–

FIG. 18-3. John H. Killough, M.D., Ph.D.; Director of Cardiopulmonary Diseases (1959).

FIG. 18-4. Daniel W. Lewis, M.D.; Director of Cardiology Clinic (1954–1965).

1969 until replaced by the new team. The latest facilities became functional in 1971.

Dr. Jorge Rios of George Washington University was appointed Director of Electrocardiography in 1971 but returned after one year to Washington, eventually becoming Chairman of the Department of Medicine there. He was replaced by Dr. George Rafter until the appointment in 1973 of Dr. Edward K. Chung of West Virginia University School of Medicine. Dr. Chung, Professor of Medicine (Figure 18-6), brought to Jefferson a national reputation as a cardiologist and author of numerous scientific publications, manuals, and textbooks of electrocardiography.

In the early 1970's a formal Coronary Care Unit on the fourth floor of the Thompson Annex replaced the previous Intensive Care Unit and came under the direction of Dr. Leslie Wiener. Specialized nursing and technical staff were recruited with specific guidelines and protocols. Full-time cardiologists were assigned to the Unit with responsibility at all times for the care of the patients. Those with myocardial infarctions could be constantly monitored for disturbances of cardiac rhythm and given resuscitation within minutes in case of cardiac arrest. Studies were undertaken on the acutely ill patients with myocardial infarction by means of coronary arteriography and myocardial metabolic studies. Surgical intervention was studied as a method of treatment. The Coronary Care Unit and Cardiac Catheterization Laboratory were moved to the fifth floor of the new Thomas Jefferson University Hospital when it opened in 1978. Dr. William Frankl was Director of the Unit from 1979 until 1984.

In 1973 the Heart Station was performing more than 20,000 electrocardiograms yearly, 250

FIG. 18-5. Albert N. Brest, M.D.; Director, Division of Cardiology (1969–), and James C. Wilson Professor of Medicine (1973–).

FIG. 18-6. Edward K. Chung, M.D.; Director of Electrocardiography (1973–).

phonocardiograms, 250 echocardiograms, 250 cardiac rhythm telemetry tapes, 200 vectocardiograms, and 100 cardiac work studies. Approximately 500 cardiac catheterizations were performed annually. Cardiac clinics were held twice weekly, and consultation services were in high demand. The Intensive Cardiac Care Unit, in addition to its patient care, provided education and research activities.

In 1973 a Professorship in Cardiology was established through a bequest of $1.5 million from Miss Beatrice Wilson of Haverford, Pennsylvania, in memory of her father, Dr. James Cornelius Wilson, Professor and Head of the Department of Medicine at Jefferson (1891–1911). Dr. Albert N. Brest was appointed the first James C. Wilson Professor of Medicine in the fall of 1973.

Between 1959 and 1979, twenty-seven Fellows were trained in cardiology. For the year 1975–1976 the Division attracted approximately 50 applicants for fellowships.

In 1980, Dr. Sheldon Goldberg was appointed to the Directorship of the Cardiac Catheterization Laboratory. Under his leadership the study and treatment of patients with myocardial infarction was intensified. Fibrinolysin therapy and angioplasty were employed in acute cases, and angioplasty was also introduced for treatment of chronic coronary artery disease.

The Cardiac Outpatient Clinic increased in size to become one of the largest in the Philadelphia area, and received many out-of-town referrals. Following the pioneer years from 1942 onward, Dr. Daniel Lewis served as Director of the Clinic from 1954 until 1965. Dr. Warren Goldburgh (Figure 18-7) headed the Clinic from 1965 until its closing in 1975. In that year the old clinic system at Jefferson was discontinued, and all patients were assigned to an attending physician. Dr. Goldburgh served Jefferson in many ways since completing his training in 1961. An able clinician and enthusiastic teacher, he received the Lindback Award for distinguished teaching. He also served as President of the Medical Staff and of the Volunteer Faculty Association. In 1987 his portrait was presented to the University by colleagues and friends.

FIG. 18-7. Warren P. Goldburgh, M.D.; Director of Cardiology Clinic (1965–1975).

The Division of Cardiology by 1986 had grown to a staff of 25 members, including nine full-time cardiologists. The diagnostic capabilities encompassed ultrasonography and radionuclide studies, exercise testing, and electrocardiographic and electrophysiologic testing. Intervention cardiology was being conducted on a large scale. In July 1986, for the first time, a cardiac support team from Jefferson traveled nearly 100 miles to another hospital to place an aortic balloon in a patient with myocardial infarction complicated by failure and arrhythmia. After arrival at Jefferson, the patient underwent emergency coronary catheterization and coronary bypass with complete recovery.

Latest challenges lie in more effective prevention of heart disease along with improvements in rehabilitation following recovery from myocardial infarction or cardiac surgery.

References

1. Eberle, J.: *Treatise on the Practice of Medicine*. Vol. II, Philadelphia: John Grigg, pp. 245–247.
2. Wooley, C.F., "Jacob Mendez DaCosta: Medical Teacher, Clinician, and Clinical Investigator," *Am. J. Cardiol.* 1982, 50:1145–1148.
3. DaCosta, J.M., "On Irritable Heart," *Am. J. Med. Sci.* 1871, 61:17–52.
4. Wooley, C.F., "Where are the diseases of yesteryear?" *Circulation*. 1976, 53:749–751.
5. Wise, R.I., *Centrifugal and Centripetal Forces: A History of the Department of Medicine, The Jefferson Medical College of Thomas Jefferson University, 1959–1975*. (In T.J.U. archives)